## SEQUENCE LISTING

```
<110> YE, Jane et al.
<120> ISOLATED HUMAN PROTEASE PROTEINS,
  NUCLEIC ACID MOLECULES ENCODING HUMAN PROTEASE PROTEINS, AND
  USES THEREOF
<130> CL001058DIV
<140> (to be assigned)
<141> 2001-12-14
<150> 09/740,035
<151> 2000-12-20
<160> 4
<170> FastSEQ for Windows Version 4.0
<210> 1
<211> 1247
<212> DNA
<213> Homo sapiens
gccatggtgg ggcagaggtt gggaagatgg cgtggcgagg ctgggcgcag agaggctggg 60
gctgcggcca ggcgtggggt gcgtcggtgg gcggccgcag ctgcgaggag ctcactgcgg 120
tcctaacccc gccgcagctc ctcggacgca ggtttaactt ctttattcaa caaaaatgcg 180
gattcagaaa agcacccagg aaggttgaac ctcgaagatc agacccaggg acaagtggtg 240
aagcatacaa gagaagtget ttgatteete etgtggaaga aacagtettt tateettete 300
cctatcctat aaggagtctc ataaaacctt tattttttac tgttgggttt acaggctgtg 360
cattiggate agetgetatt tggcaatatg aatcactgaa atccagggte cagagttatt 420
ttgatggtat aaaagctgat tggttggata qcataaqacc acaaaaagaa ggagacttca 480
gaaaggagat taacaagtgg tggaataacc taagtgatgg ccagcggact gtgacaggta 540
ttatagctgc aaatgtcctt gtattctgtt tatggagagt accttctctg cagcggacaa 600
tgatcagata tttcacatcg aatccagcct caagtgttat ttccaatttt gtcagttacg 660
tgggtaaagt tgccacagga agatatggac catcacttgg tgcatctggt gccatcatga 720
cagtectege agetgtetge actaagatee cagaagggag gettgecatt atttteette 780
cgatgttcac gttcacagca gggaatgccc tgaaagccat tatcgccatg gatacagcag 840
gaatgateet gggatggaaa ttttttgate atgeggeaea tettggggga getetttttg 900
gaatatggta tgttacttac ggtcatgaac tgatttggaa gaacagggag ccgctagtga 960
aaatctggca tgaaataagg actaatggcc ccaaaaaagg aggtggctct aagtaaaact 1020
gggattggac agtagtggtg catctggtcc ttgccgcctg agagccccag gagacatcgg 1080
ctagagtgac catggctatg ctcccgtctg gaagatgcca gcatctggcc tcccactgtt 1140
ttcagctgtg tcccccagtc cgtgtctttt tagaatgtga atgatgataa agttgtgaaa 1200
taaaggtttc tatctagttt gtaaaaaaaa aaaaaaaa aaaaaaaa
                                                                  1247
<210> 2
<211> 329
<212> PRT
<213> Homo sapiens
Met Ala Trp Arg Gly Trp Ala Gln Arg Gly Trp Gly Cys Gly Gln Ala
                                    10
```

```
Trp Gly Ala Ser Val Gly Gly Arg Ser Cys Glu Glu Leu Thr Ala Val
Leu Thr Pro Pro Gln Leu Leu Gly Arg Arg Phe Asn Phe Phe Ile Gln
Gln Lys Cys Gly Phe Arg Lys Ala Pro Arg Lys Val Glu Pro Arg Arg
                        55
Ser Asp Pro Gly Thr Ser Gly Glu Ala Tyr Lys Arg Ser Ala Leu Ile
                    70
Pro Pro Val Glu Glu Thr Val Phe Tyr Pro Ser Pro Tyr Pro Ile Arg
                                    90
                85
Ser Leu Ile Lys Pro Leu Phe Phe Thr Val Gly Phe Thr Gly Cys Ala
                                105
                                                     110
Phe Gly Ser Ala Ala Ile Trp Gln Tyr Glu Ser Leu Lys Ser Arg Val
                            120
Gln Ser Tyr Phe Asp Gly Ile Lys Ala Asp Trp Leu Asp Ser Ile Arg
                        135
                                            140
Pro Gln Lys Glu Gly Asp Phe Arg Lys Glu Ile Asn Lys Trp Trp Asn
                    150
                                        155
Asn Leu Ser Asp Gly Gln Arg Thr Val Thr Gly Ile Ile Ala Ala Asn
                165
                                    170
Val Leu Val Phe Cys Leu Trp Arg Val Pro Ser Leu Gln Arg Thr Met
                                185
            180
                                                    190
Ile Arg Tyr Phe Thr Ser Asn Pro Ala Ser Ser Val Ile Ser Asn Phe
        195
                            200
                                                205
Val Ser Tyr Val Gly Lys Val Ala Thr Gly Arg Tyr Gly Pro Ser Leu
                        215
                                            220
Gly Ala Ser Gly Ala Ile Met Thr Val Leu Ala Ala Val Cys Thr Lys
                    230
                                        235
Ile Pro Glu Gly Arg Leu Ala Ile Ile Phe Leu Pro Met Phe Thr Phe
                245
                                    250
Thr Ala Gly Asn Ala Leu Lys Ala Ile Ile Ala Met Asp Thr Ala Gly
                                265
Met Ile Leu Gly Trp Lys Phe Phe Asp His Ala Ala His Leu Gly Gly
                            280
                                                285
Ala Leu Phe Gly Ile Trp Tyr Val Thr Tyr Gly His Glu Leu Ile Trp
                        295
                                            300
Lys Asn Arg Glu Pro Leu Val Lys Ile Trp His Glu Ile Arg Thr Asn
                    310
                                        315
Gly Pro Lys Lys Gly Gly Ser Lys
                325
```

```
<210> 3
<211> 19736
<212> DNA
<213> Homo sapiens
```

<400> 3

```
cgaggtttct tcatgttggt caggctggtc tcgaactccc gacctcaggt gatccgtccg 60 cctcagctc ccaaagtact gctgggatta cagacgtgag ccaccgcacc cggcctttat 120 ctttcattt ttttcatgta ttttccttta ttttaatcac tttatccaga aacatatcct 180 cgtcttgaca gtgctgtggt gcctgtggtt tccagaagct gggtgtgctg tgtgtctgtg 240 gtttgaggaa gttgcccatg gaactgacag aggaagcaga gtagtcgttg ccattttca 300 gcctagtagg caggatcagg gaccccatct tgctctcttt gccttgaacc acaattagaa 360 taaaacacca aagccctgac tgatcatgat catagcaatc cgatctttat gatcatggcc 420 agaccattct caggtcgtc ttaccctaag atatcaatca ctgggtatga caacctagac 480 ctaagggtgc actctggta gtaaagatga ttaacctcc caaaggaatc taaggaatcc 540
```

agagcaacac gaatcactgc tctcttccta tagggtaaac ctcccaagac tccagtccct 600 qtqaqqaqqc tctqcccqcc tqcccttccc aqqqttccaq qctccacatt qqqaqqtqta 660 cacagtgete ttegetette attgeettgt gtatgatece tttteecate tttgeataaa 720 tgctgtccct ctcaccatct ttaaaagagt tctgggtaat tatttaccaa aggtggtata 780 atgctgtcac agtccctgct agtgagacat ctgatacaac tgatggaatc agttcaacaa 840 aatgcagtaa aattttattt aatgtactac ggagaaagaa aaaatgctac cagttataag 900 atgcatcctg atttcagata ttaaaatgga aaaaatgtct taagatctgt gaaaaatgta 960 gcttcctttc ccacctctca agtgggagag caaaaactgg acagactaga aatgccaggg 1020 gctagctgag aaccttacag aatgagcaac tgcggaagcc acaggtaaca ccgagatgta 1080 gatcagctgc cagggacaag acaaagaatg ttttctaaag taaatcctct taccagtatg 1140 ttattgaaat cagtccttat tggcatcgaa gaaggtgaaa gtgctacttg cctgttgcct 1200 acagaqactq qaqqaatqac aaatqtttaa attattttaa ttcaacaaqt aqaqqaatac 1260 ctgctatgtg aaggagttgt ggcaattcat aaaattaata tattttttga agtttgtagt 1320 tttcaataat aatttcttat ctaaaatgta acaagttaat tatattatcg aataaacctc 1380 aatttcgtag tactaacaac atcaacactt acagaaaaaq qaaaqtcact caactcccac 1440 atgtaaacag actttagaag cagttgcaga ggttttctaa attatccctg aattcctatc 1500 acatgactat ttttctcaga catgttgacc ttcacctaca cagatgactc acatatgttt 1560 ccataagctg gcagtaagtt taagaagcat accatgccct qaggaaaaag aagtaatgtt 1620 agetetteta etettggeea aagaacetaa ttetgtatat taettetgte tttggtttgg 1680 ctattataga caataaatta ttgatctgat tataattgag aaaagtaagc tcttctaaag 1740 aagtaaaata tggatctagg gaaaggaagt tagctcccag agcatttaca atttcccagg 1800 aattetgtga etttaccaac eetaggeagt getgataett taaaageatt eattteaett 1860 gctttttttt ggctcacccc ctatccccca ggtatacagt actcttacat aattgtggaa 1920 gaatettaca agggggtaat gtagateaga ettteetget tteattttta aceteeetaa 1980 attataaata tttattttgt aggtattata gctgcaaatg tccttgtatt ctgtttatgg 2040 agagtacett etetgeageg gacaatgate agatatttea categaatee ageeteaagt 2100 ttaatggaag tgctgtaaaa aagacgaatt acctatcaat agctacaagc aaaatgcaga 2220 ggataggctg taagctcctt cactgaggac agggacctca cctctcttt tcttttctt 2280 tgttttttt gagacggagt cttcctctgt tgcccaggct ggagtgcagt ggtgcagtct 2340 tagctcacta caacctccac ctcccaggtt caagtgattc tcctgcctca gcctccctag 2400 tagctaggat tacaggtgcc cgccaccaca cccagctagt ttttgtattt ttaatagaga 2460 cagggtttca ccgtgttgga taggctgttc ttgaacacct gacctcaggt gatctgcctg 2520 gctcggctgg agtgcagtgg cgtgatctca gctcactgca agctccgcct cccgggttca 2580 tgccattctc ctgcctcagc ctcctgagta gctgggacta caggtgcccg ccaccacgcc 2640 ccgctaattt ttttgtattt ttagtagaga cggggtttca acatgttagc caggatggtc 2700 tegateteet gacetegtga teegeeegee teageeteee aaagtgetgg gattatagge 2760 gggtcttgct ctgttgccca ggctagagtg cagtgatacg atcttggctc actgcaacct 2880 ctgcttctca ggctcaactg atcctcccac ctcagccccc aggagctggg actacaggtg 2940 catgccacca tgcccagcta attttttttg tttttagtgc agatgaggtc ttgccatgtt 3000 gcccagactg cttattttt tctaatcaac ttttgccata aggacaagtt gctttcattg 3060 aactgagagt ttttattggt tgcttactaa gtagaaaaga atatttatta agacagcttt 3120 ttgtcacttt taaaaatgat gtcttaagct gggcatagtg actcacatct ataatcccag 3180 cacttgggga ggctgaggca ggtgaactgc ttgagctcag gagttcgaga ccagcctggg 3240 aaacatggtg aaaccccatc tctactaaaa atacaaaaat tagttgggca tggggtatgt 3300 acctgtggtc ccagctactc agggaggctg aggtgggagg atcacttgag cccttgagcc 3360 tcaacttgag gaagttgagg ctgcagtgag ccaagatcag tgccactgca ctccagcctg 3420 gggcgacaga gcaagactct ctccaaaaaa aaaaaaaagt cttaaaaaata gctgtttttg 3480 ttttccatgt ttgtttcata aatttttttt ttttttttt tttttgagata gagtctcgct 3540 ctatggccca ggctggagtg cagtggctca atcttggctc actgcaaact ctacctcctg 3600 ggtccaagtg attctcccgc ctcagccttc cgagtagcag gaattacaaa cgtgcgccac 3660 cacacctggc taatttttat atttttaata qagatqqqqt ttqactatqt tqqccaqqct 3720 ggtcttgaac tcctgactta gtgatccgcc tgccttggcc tcccaaagtg ctgggattac 3780 aggegtgage cactgegtee ggeetaattt taaaagttta aaatggataa tttttattgg 3840 ctgtgtgttt catgattacc agactatgtt tctctctctt gtagaggtcc tttgttctcc 3900 aatgttgctg tcaacattca gtcatttctc cttatttcac atggcagcaa atatgtatgt 3960

tttgtggagc ttctcttcca gcatagtgaa cattctgggt caagagcagt tcatggcagt 4020 gtacctatct gcaggtaata tgctttaatc tcggggcctt tgagagtata agcactctaa 4080 gctatctgca gaacggacaa agggaatgat tactgccata ttctacacgt agtgagtgct 4140 caqaacatat ttqtttctca cagtgtatgt agagaaggga gccacagatt ggtggagatg 4200 ttqccttttc tqttcatttt qctqatttct tcttacatat gaattatgtg ggtatgttta 4260 attttaagtt aggataaaca ggcgttaagt aagggttagt gtagaattta agcatgtcat 4320 ttttgtaatc tcatcgggcc ttgatttcat tagtttaggc cctccatttt atagatagtg 4380 gttcccagac ttcccggctg cctcaatctc ctgggtcttt gttaaataac cttaagcaag 4440 ctcatttccc ccagtqtqtt cagttcacag aaagctttaa atcagagcta tacaatatga 4500 ttgtcaagag tgagtttgtt ctgtcttctt tgcaagaatg tagcagggaa ccacttccta 4560 gccatggtct tgaagatggt atcgtttctt atttcagtta ggaaattctc atgcatgaat 4620 ccaggtccct agatgctgct aacgtgacag ttggtcaaat tttacttacc tctctgtttg 4680 taaaatgtac ttacttaata caatataaaa attaatttct aaaatctcta catttagaaa 4740 cagtatatct ggcagttgtg ctgtgatgta gtgaaaaaca ctaagcttgg cgatagaccc 4800 aggttcagat cctatttcta ctaccagctg agtgatgttg caaaaatgac taaacctcat 4860 gatacttacc tcctcatgac aaggggttaa agaaaggact acataaaagc atctaccaca 4920 agccccagag tagatgctta attagtgttc atcgaatact tatgtgtatc tagtccttca 4980 aaaaaagaag ctgagcattg tgtttggctt gtaagataag tgtatagttc tttcccaagc 5040 actagttatg ttgtagttac agagggtctg tttcagatac attaattcct gctccatagg 5100 aggtttttaa aaatgagcca cgttgactca aatggcactg aagccaaaga gacttacggg 5160 atcatccagt ctgttgtccc accccagata ttctgatttc gtgtgtctgg agtacagcca 5220 gagaatatac tettgggaat gagtetteat gttatagttg aggaaaatgg taactgagaa 5280 gtggagtgaa tgaccgtgtc gctcagcaga tcatgcagca ggtcagactt ttcatcccct 5340 gtaaagtcgc tgaaatgata ggcaggagaa gtattcatgc ccgtaccctc acagtgatcc 5400 agattgaaac ccgacactgt ttatctgtgt agaaatcaga aatgaaaacc attttcatgg 5460 ctggatgtgg tgccgcacgc ctgtaatccc agctactcag gaggctgggg gacaagaata 5520 acttgaaccc ggtaggcaga ggttgcagtg agccaaaatt gtaccactgc acttcagcag 5580 taaaccattt ttatacctca cttaaattat tgtaatgtga cttgtttttc aggtgttatt 5700 tccaattttg tcagttacgt gggtaaagtt gccacaggaa gatatggacc atcacttggt 5760 agtttagact tagaagaatg ttgtaaaatt gataagtagg ttctcatata cccttcaccc 5880 tactgttaac taacatcgaa accaagaaat taacattgaa acaatacagt tgactaattt 5940 agaatttata catttgtaaa gctttgtaaa tgtccggcta tagcttttaa ccattggtca 6000 tatatatatg tttaccagag cagagtatat ctcagaacag taagtgtgca atcctcgtaa 6060 accagagage ctaatccagt attggaagat tetaattata gatttgaate tggtaettta 6120 tcctcctatt taqtcaatat tggagtgcct actaggtgct atgctagagc ctggggataa 6180 cagctggtga gcaagatgat cacgattatt tgtgttggtt ttagaaagtg gggaacaaca 6240 acaacaaaaa aggctcctgc cctcagagct cttatattct ggatgcttaa aaaaattttt 6300 cttaggctgg atgcagtggt ttacacctgt aatcccagca ctttgggagg ccaaggtgag 6360 aggatgagec caagaatteg aaaccageec tggtaacata ccaagateet atetgtacaa 6420 aaaaatttaa aaaattaact gggggtggtg gcttatgccg gtagtctcag ctactcagga 6480 ggctgaggaa ggaggatagc ttgagcctag gaggttgagg ctgcggtgag ctgtgattgt 6540 accactgcac cccagcctgg gtgacatagc aagaccctat ctcaaaaaaa aaatttttt 6600 ttaagtgtgt tttgaggctg ggtgcagtgg ctcacacctg taatcccagc actttgggag 6660 gctgaggtgg gcagctcact tgaggtcagg agttcaagac cagcctggtc aacatggtga 6720 aaccctgtcc ctcctgaaaa tacaataatt agccaggtgt ggttgtgcat gcttgtaatc 6780 ccagctactc gggaggctga ggcaggagaa ttacttgaac ccagcgggta gaggttgcag 6840 tgagctgaga ttgcaccact gcactccagc ctgggtgaca gaacaagacc ctgtctcaca 6900 gaacaagacc ctgtctcaaa gaaaaaaaat ttttttaagt gtcttttgag tttaatggca 6960 qatttctqqq cacatqqaaa tctttatqta atatttcctt acacattcag tttgtactta 7020 tttaaatact aattcattta aatgcattca aatagggaat ttcctattta aaggaactct 7080 aaaaaqqtca attttqaaaa qaattcttat qtaaaataac cattccctaa tttgtatgtt 7140 ccccaaattt gtttacactt aattttccta gtgaggcctg tgttctgtcc tgtgaccaca 7200 tgctttctta agcctccttt tttcccttcg tggaatgttt attttcttta tacaatttcg 7260 ctctgatata atttatatat ttcgaatcat attgtctacc tcattcaaca gctaagcacc 7320 taatatatga aggcagtgaa gaccactagg atgaatcaga gactcagaat tcgaatttag 7380

ctqqqqaqaa aacatqcaca catctaatac acactqaaaq qaatqaqqat tctctaqaqq 7440 actttggggg ctctaagagt gaagagacct ttctaattag ctgaaaggac ctgcgagggc 7500 attttgatgt gctcttggac agctgttgtc ctcatcttat agataagaaa ctgaagtgca 7560 aacttaatga agtatggcag taaggtattt ggagttagag tgggggtgaa tcctggttct 7620 qctacttacq tgtgatttct aggacatatt actgaacttc tctgaatttc agtttccctt 7680 tataaaatgg ggataacacc atctatttct gaggtgcaaa gcaagtacat ttagagtgct 7740 tagcacaata agaagcacat qqtaaqaaat qtqqacatqq taqttcctqt tcaqtcatca 7800 aaatcctaca gcgccgtggt aggataacat tatccccaaa tatcttaatg aatctgtgat 7860 taaaattcaa ggaaattaaa tcaccaggta taatggcatt tttaatgaga aatctgggaa 7920 aaaaacacca ttaacaaagt tgtgttgtta caaaatgtaa agcgttagtc ctcttggttt 7980 agtgagacgt tataagatgc aggggacagc caggcacagt ggctcacgcc tgtaggccca 8040 acactttggg agccacggca ggaagatcac ttgagcccag gaggtttgag actagcctgg 8100 gcaacaaagt gagaccccat ctctacaaaa aatttcaaaa ttaagccggg catggtggca 8160 tgcacctgta atcctaccta ctcaggagag gtgggagggt gggaggaatg cctgagccta 8220 ggagggtgag gctgctgtga gccatgagca tgccactgtg ctccaacctg gacaacatag 8280 cgagacccca tctcaaaaaa aaaaaaagaa agttgaatgg gactgttaaa atatgtttgt 8340 aaattactgt attggtacta tcctggataa tttttaaact tttctgtaga gacagggtct 8400 ccctatgttg ccaaggctgg tctcaaactc ctgggctcaa gtgatcctcc tacctgggcc 8460 tcccaaagtg ttgggattac tggtgtgagc cactacaccc ggccaattgt cttttcttat 8520 tcaagttgag atttttctgg ttcttgatat gatgagtgat ttttcagttg aagcctgatc 8580 attttagata tgatgagact ttggatctta ttgaaatctg ctgtttcagt ggtcttcctc 8640 tgacactgtt ctgatgagga gagggggtgc cgtgactcgt tactgctggg tgtaggagta 8700 gacgtccagg ticctcactc agccgccttt gcctcctgag tgataggggc tcttgtcact 8760 gcagggcagg gatgggagct gagggcgtgc aggctaccta gtgtgcctct gctaatgtcg 8820 ctgtggctag gaggagcaag ggtgcttctt tccgctgaca ccgcctgtta ggcgtattgg 8880 gatgcctcat tacagtgtgg caagggtggg agtctaggct ctgctcagcc tttgctgggc 8940 acceptitet ctaaatattq tetaaaaqqt etettitqet agqetatett tittitqqtee 9000 ttgactagag agaacatgtt gagggatgat cgatatgagg ccaaaagaaa gcccagggaa 9060 ctcaccacca caacattgat tgaatctcag gcttcctagc tggtccgctt tcctctctct 9120 tcctttcaca gtcctcttac atttgtttca tatgtaacac ccagggtctt tagctgtact 9180 tagcttttgt aagcagaggg agcagattca cttaaattat aataccaaat aaagttaaaa 9240 aacataagta tgatagattt gaagattata tagatacaga aaaatgtttg tgagcccagg 9300 cgcagtggct cacaactgta atcccagcac tttgggaggc cgaggtgggt ggatcacttg 9360 aggecaggag ttegaaacea geetggeeaa catggtggaa eeceatetet aetaaaaata 9420 caaaaattag ctgggcatgg tggtgtgtac ctgttagtcc cagctacttg gcaggctgag 9480 gtgtgagaat taacttgaac ctgggaggcg gaggttgcag tgagatcgtg ccaccgcact 9540 ccagtttggg caatagcgag actctgtctc aaaaaatata tgtttatgaa ataagtaaaa 9600 aaaaatcaga tgtgcatatt gattacaggt atataaccag tacataaaaa tattgatgga 9660 gaacaaaaga cetteacete tteecatgga eccacacete ttaggtetgt tggateaggg 9720 ttcatgactc actgtactta aactgtgtat gaatgtgagc gttttctgag aagagaaggg 9780 ttcattttca ttaaattctt ctttctqact cqaaaaaqtq aaaaaaqtct ctctqcatqq 9840 gagtaagccc aaatatttgt caaaaaacaa gttgtgattt attcagacat ataaatattt 9900 aaatttatat aaaagccaca tcgagaaaat tctagaagga tgatggaact gtgtatgtaa 9960 taattacaat aagttataat cacaaaaaaa ccagcgttcc atggaattgt acagataacg 10020 acaatttttt ttaacagatg gagaataatc atctatggaa tagtagttta gaagaacttc 10080 atagaatttt ttttttttt ttttttttt tttttttggag agggagtttc gttcttgttg 10140 cccaggctgg agtgcaaagg tgcgatctcg gctcgctaca acctctgcct cccgggttca 10200 agggattete etgeeteaac eteetgagta getgggatta eaggeatgea ecaceatgee 10260 cagctaattt tgtattttta gcagagactg ggtttcttca tgttggtcag gctggtctcg 10320 aactccagac ctcaggtgat ctgcccgcct cagcctccca aagtcctggg attacaggtg 10380 taagcgactg tgcctggcag aacttcatag aattttaatg ctcttttata tcaactaatc 10440 aaattatatt tgcttcattt tggggaaacg tgtaattttg atttgttttg gggttttttt 10500 gagataaagt gtcactctgt cgcccaggct ggagtacagt ggctcaatct tggctcacca 10560 caaceteage etteegagta getgggaeta eaggegeeca ecaecaegte tggetaattt 10620 ttgtgttttt agtagagacg gggtttcact atgttggcta ggctggtctt gaactcctga 10680 ceteaggtga tecacetgee teggeeeete agagtgetgg gattacagge gtgageeaec 10740 gtgcccggct acaattatag tctcttgcac agaagccagc ttggtcaaaa ttcaggtctt 10800

cttqqqtcct ccttttqaqq aqtqttcatq ctqtccttcc atcttqcaqt taccctgact 10860 tctaagaatg caacccgagc ttgtttccct gttgaggcca cttggcagtt atatgaggga 10920 ctggggacat ctgagatctc tgggactcat aataattttc tttaaagttt tagtaattcc 10980 ccaaatgtaa gataatcttg tattctgaag caacccgtca catagaagac attaagaaaa 11040 cattgattaa gagaqqtaga tgctattttc cagaaacaac cqtttttata tgaaaagqta 11100 qqaacctttc tttttaatga taggggcttc tttcaaaagt tattttgctc ttaggtgtct 11160 ttttttttt tttaaacatc tcattcataa ataattaaaa acttatggga aagttgcagg 11220 qaataqtaca qaqqactccc ataaaqtctt ttttqtttqt ttqttttqt ttqttttqaq 11280 acagagtete getgttttae eeaggetgga gtgeagtggg acaatetegg eteaetgeaa 11340 cctctqcctc ccgqqttcaa qcaattctcq qqccttaqca tcctaagtaq gtgggattat 11400 agagacgggg ttttaccacg ttggtcaggc tggtctcaaa ctcctgacct caggtgatcc 11520 acctgcctcg gcctccaaaa gtgctgggat tataggcgag agccactgca cccagcccca 11580 tgtagtcttt ttaaaaagca ggcaactcag gtttactagt taacatgcaa aaaactgcac 11640 atatttaaag tttggtaagc tttgacatgt agacacccgt gaaaccatca ccacactcaa 11700 gatcatggac atattcatcc caaaagcttc ctagtggtca ctccttcctg cccctcctct 11760 accectggcg acaacttace tacttetact aaagataaat tagtttgcaa atggaaccat 11820 acagcatata ctagtatttg ttgtcctggc ctcatttact ctgtataatt actttgagac 11880 tcatccatgt tctgtgtatc agtttattcc tttattattt ttgagacagg gtcttactct 11940 gttgcccagg caggagtgca gtggtgcaat catagctcac tgtaaccttg acctcctggg 12000 cttaaqqqat cctcatqcct cacaatqtqc tqqaattaca qqcqtqaqcc accacactqq 12060 caatgttttg tttctttatg aagatgaata aagatttcac atgaattttt taagatgaaa 12120 catgetteat geatgeaggt ttetttggge gtatteatge ceaetecete tggttggage 12180 tttgtcagag aagtgtgagc agttctttcc taggccatag gtgaaagatg cgcatgacac 12240 gcttagcact gtccttgcgg ttcatgaggc acatacatct tactgccccg tagtaaaaat 12300 tcagtctttc caagcgatta ctgtgtgaag gacatttagt tccttcacct attattgggg 12360 acataaqtaa ctqaaaqctt tqaaqctttq tqctcaccta qaaatqtqca qcatqtaaac 12420 tttctagaaa atgtgctgct ctttagacct tgtagccact aagcagttgc atattgagtt 12480 teccattete cetgetgtgt taetttgeag tetggtgeea teatgacagt cetegeaget 12540 gtctgcacta agatcccaga agggaggett gccattattt teetteegat gttcaegtte 12600 acagcaggga atgtaagtat ttttatgaag tgcagtgctg gggatagtgg tgatgttttt 12660 atgttgagtg ggttcttgcc cttaagttag aaatgtcagt gctggagcaa tcacagttgt 12720 gccgcttgtt tcttgctgcc tttcaggccc tgaaagccat tatcgccatg gatacagcag 12780 gaatgateet gggatggaaa ttttttgate atgeggeaca tettggggga getetttttg 12840 gaatgtaagt ttgagtgtaa ttgattgcta aactgcttcc ttgggtcatg cgctcctcct 12900 accccagcct cacccctacc ccccatcccc atggcagaga cattgaacta tgcaacggaa 12960 qcaqaaqcaq qtqqqcttqq qaqqqtqaqq aaacctcaac atqqcttqct ttqqqtttac 13020 📇 : ccagcatacc tggctcattg tagagacagt ctgtgccttt accctacgct taaccttaag 13080 ttgccccaac tgttggcctg ttattcccag cccctctta gaagactgca gcctggcccc 13140 cagtetatge tgacatette ttttteccet teagacttte etgeceteet etcecetgee 13200 tggcqtccca ccctqctacc ctgacctctq tctcqccaqt qctatttaqa catqctqaqt 13260 tggcggagcc attgctctgt atgactggag tagaggccgg tgactgcaaa ccaatgtgga 13320 ccacttactg agtacccgct gtatgcaggc accaagctag ttcccttatg ttatactatt 13380 actactecca ttttactgat gggaaactga ggeteagaca teatetteec eaggeeaaac 13440 agctetteaa tageagagea gagetgtaaa eccaeeteta taageeettt ecaeeeceae 13500 cacaccatat ggaattggtt gctaaactgc ttccttgggt cacagcaaat ggcattgtgg 13560 ttacaagacc ttccacgtgt gcttcaaaca atggggtttt gcctagacta gtgcttagta 13620 qtaactqtat cacqqaaaca cqqtcaqqac tcttqqcqtc catctqatcq tqqqaqaccc 13680 gtcagcatga gctggatccc ctcggggcct gtcttttctt acataaatgt tgccttttgc 13740 ccttacttgg tttttatttt gttccgcgac aatggaaaac ttaattttt tttttattaa 13800 aaagaaaaat ctattctggc caggtgcagt ggctcacgcc tgtaatccca gcactttggg 13860 aggccaaggc aggcggatca caaggtcagg agatcgagac catcctggct aacacagtga 13920 aaccccgtct ctactaaaaa tacaaaaaac ttagccgggc gtggtggcgg gcgcctgtag 13980 teccagetae tegggagget gaggeaggag aatggtgtga acceagaagg cagagettge 14040 agtgagccga gatcacqcca ctqcactcca gcctqggcqa caaaqtgaga ctctgtctca 14100 aaaaaaaaaa aaagaaaaat ctattctaag tgaagcagtt tttcccagta ggtggcagaa 14160 ctaaatgcca ttatgccatt tataatttta agtgattaaa gaggagtagt atgtagtata 14220

tqcaaggtct agctctaaca gcagtgcagt ataaatagta gaaactgacc tgatattaca 14280 gtatgagaaa catgaagggg ttctgttttg tgagctctaa atttatcttc catgtatact 14340 tcaaggctct tctccccagt agatttttat tcatctgaac tataattagg tggccttttt 14400 ccattctgaa aataattgga tcaaatgcat tttaaagtcc agggtctgaa aggtggagga 14460 atcetttete tttactgttt etaatttaaa eteettttea tttactagat tteagteatg 14520 tocagaatto atottttota aaagotttaa totagattta gaaatotaaa atottttatt 14580 tatttttttt tcgttgaagt gccctgattt tgttggtggt aaagactcca ttagtatcca 14640 cttatacatt tecetgaett tgeetetgae caaacettae agtatteaea ttgtaetgtt 14700 gcaataataa tagctaacat attaatacac tgaatatttg ctgtgtgcct aagctaagga 14760 tttaattctc ttaaaatcct gtgaggtatt ttattttaca gaaaaagaaa ctgcttaaag 14820 aaagtaactt atccaggtca cacaagtaac aattgcagag ctggagtttc agatgagggc 14880 tggcttgcgc tgccgctaca gaaaagagtg ccctagaaat cggtcatctt gcatttcccg 14940 attttagttt agccaaatga aaaattcctt ttggatttat gagtataatc agacagtata 15000 cctgtgaaat taaagtattt gactctttgc ttgaaataag taggttaaaa agatttgggt 15060 ggccgggcgc agtggctcac gcctgtaatc ccagcacttt gggaggctga ggcaagtaga 15120 tcatttgagg tcaggagttc gagaccagcc tgaccaatat ggggaaacct cgtctctact 15180 aaaaatacaa aaattagccg ggcgtggtgg tgcatgcctg taataccagc tacttggagg 15240 ctgaggcagg agaatcactt gaagccagga ggcagaggtt acagtgagct gagatcacgc 15300 cactgcactc cagcctgggc aacagagcgc gactctgtct aacaacaaaa aagatttggg 15360 aaaacacttt attaatgaag agttcctgac aaagtgattt ttttggggag aatttttata 15420 attgcatttg aatattaggg tgctcctttt tctctcattc taaattcacc agagacttaa 15480 gcacagagaa tttttattac atgcctgtta attaatgtgt ataatcagat tttaactata 15540 tttagtgaat attaagattc aggtacaaat caagcccttt ataattaaac atacacattc 15600 agaacatttt taaaatatta aaacattaaa ctgctcttct cacccactcc aagtcaaata 15660 gcattttttc agtcaggtgt ctgggagctc gatgcaagat aacaaaatct ggtctctgcc 15720 tcagggaaca tgaaatctgt ttggggaagc cagagcaaaa ataaaggttt taatagcaag 15780 ctctcactaa ctgccctgg aaatccaccc cacatcctcc aggaagcctt tctctacccc 15840 cagtgccctc aggagcttct ccaaggcagg cccttcccag agcgcagtgt gctccccagc 15900 tcacaggaga tgctccctac acgctgcagg aaagtccagt gcctgcagca caggcttcag 15960 cagcagactc gggttctagt ctcagtctgc tgattcctag ttgtgggaacc tgagcaggcg 16020 aagttactaa acctetetgt gegteageet eecaggeteg ttgetteagg eegeagttag 16080 gctgtgtgaa caggagagtg gggatgggaa ctaggtatct taaagcgggg cagagtttgg 16140 atgageggge caccettegt atagttagga ggaagatgae gggaggeatg gaagetggga 16200 tagccatcct gagtcagtgc taattctgac acttcagaac atcgagtcag tctgacctgc 16260 gagtgagctt tcattgacca cttagaaact attagcacct tggacaaact actttctttc 16320 agacctggtt gcttcatgtc tgcgatggga aaactgatac ttaacttgca gatagtggtg 16380 aatcaaaagt agtatatgtg aagtactcac acactgcgga gcattcagcc atcgtcccat 16440 cctacttcta ccttttacat attgtaatat gaaagctaaa ccatttctcg atgtgagtca 16500 gttttaatcg gctacatagt gagtggcatt cgattttaaa aatgtcaact tgggatctgt 16560 caccatgcta cttaccattt gtatgtcaca ctgtttgaat gtcggacctg gtttgttttt 16620 ctccagatgg tatgttactt acggtcatga actgatttgg aagaacaggg agccgctagt 16680 gaaaatctgg catgaaataa ggactaatgg ccccaaaaaa ggaggtggct ctaagtaaaa 16740 ctgggattgg acagtagtgg tgcatctggt ccttgccgcc tgagagcccc aggagacatc 16800 ggctagagtg accatggcta tgctcccgtc tggaagatgc cagcatctgg cctcccactg 16860 ttttcagctg tgtcccccag tccgtgtctt tttagaatgt gaatgatgat aaagttgtga 16920 aataaaggtt tctatctagt ttgtaagcag atgtgtgtt tctctcttta aggggccgac 16980 acggctctgg cattttgctt tggttgttgc attgacagga cctggggaga gtgcaccctg 17040 aaaggcctga tcagaacatg aaggcgctgg ttgcctgtct ttggaccctc cagtgcctct 17100 gettageett caetetteet tgeeteece teecetgggt tggetgeaca taaaagteaa 17160 gagtatecce tetecageae aatetgaaat aacagetgea gtattttete aatttteagg 17220 aaaggtagtg ttttctggca gtgagtggca tatacaaaaa gctattttca ggttttgctt 17280 tctaggttca atttgtagat aaattaagag gtagaaagaa gtgatttggg taaattcaga 17340 cttgaaatct gagccgaatt ttatcttctg tttgaaagtg ttctaattga agcgtctcac 17400 tgaaaatagc agatagtggc tgtcgtcgtc acagccctca ctgttgtgga attcatgtta 17460 ccctcgtgac tgagaatgac atctaggaaa tgcagtttga gagtatgttc ttcttgaagt 17520 catttacagg agaattttta gtcttttgat ggcttcaaaa tgttatacca agtcttgcag 17580 ctttgtcctg ggaggatcga aggccctgat ttcagcctcc tgtggccgat cggactcagg 17640



```
ttgtgtgccg tgggggatgg gaatggcggc tttggaaaag gagtgggagt ggtgccacc 17700
tcaccaggca agtgagaact gcatggcagc acgcgcccag cacatagaaa ttgtccagta 17760
tttggcagtc cttcatatcc ttcttccatc aggctggact tgtttctact atgatttaca 17820
gttattcttc ccaggcacag gattctgttc taaactcgta tcacttctag gggagagagt 17880
tatcttagcc atcattttgc cagcgaggaa acggcacacg tggtgtaggg gcactgccca 17940
aggtcacaat getttgetet gacatetget aacaactgea acacagatga ggcaagatge 18000
qttttccaqa qatqqqataq qaqqctqaqt tcataqqqac attccctcta qaqcccaaca 18060
ttaattcaca tcqtqctttq qqcaqaccaq qcaaaqaqqc aatqaaqaca tctctqtqtc 18120
cctgctttgt gactgggaaa aagttagaag tccctgtagc atctcctggt ccctaaaacc 18180
cctcaatgct ggagcctctg tgcatggcct ggggaggcca gaacctggct gtggccggag 18240
aagcettget gteeacaget eeeteetgat tgeecaegag ggtgetteae ttteteetet 18300
tggcttctct ggggacccgc gatcactgcc ttcaaggcca tgcactccct ggcccgtggg 18360
cctcttgggc tgtgccgcct ccactggcat ctgaagtgtg gggtacctag gaacatgccg 18420
tggctgccgt ctccctcatt ccatacactt cttgagtggg tgcacttgct gaagcctcag 18480
ttatctgtga ggattctgag ctccagaccc acagaatctc tctgtactct tagtaaatgt 18540
gtctactgca acacacgcat ggttccaggc tctgggacca ccccccgcc ctgcacaggc 18600
ccctcaaata gcactcggct taaggagtga cacgagcaat cggtgaagtc tgaaacccgg 18660
agccattcga gatctccctc tctcgcctct tatttctaga attcagcccc tcagccttcc 18720
cagtgcctgt gactccgtgg tggtcctcac ttcttagtcc ctggactgtt gagcctgttc 18780
ttccagctqq tctccaaagc aaccctqtqc ttctccatat gcctqccaga gtgctaaaaa 18840
cacqtctqtc attcctttqt tqtcacctqt qaaaaacttt tatttatttq agacaqqqtc 18900
tetetetete tetetegtee aggetggagt teagtggtge aatetagatg gteactacae 18960
tcagggagtt ggggatggct cagagctgtt aacagagagg ggactgccca ggaggacctg 19020
cgtgaggggt ggggtggga tgacaaggaa ccagctctgg gagttgaaag acctggattc 19080
aagteteaac ceaageeetg gecagetetg ggaceeegga caagteggee teactetetg 19140
cccctcagtg ggctcctgtg tagatgggga taatgatggc tttatatcct gagaatgtgg 19200
ggaggggatt aagtggccaa aatacctgag agtgcgcact cagtgcctgg ctcagcaaat 19260
gecettgtte cetectteee tetececaga acceeteete ecettettet tettttttt 19320
tttttttttt tgacccagag tcttgctatg ttgcccaggc tggagtgcag tggcacaatc 19380
tcggctcact gcaacctcca cctcctggct tcaggcaatt cttgtgcctc agcctctcga 19440
gtagctggga ttacaggcag gcaccatcac gcccggctaa ttttttttt tttttttt 19500
agtagaaatg ggatttcacc atattggcag gatgttctcg atctcctgac ctcaggtgat 19560
ccactcgcct tggcctccca aagtgctggg attataggtg tcagccactg cgcccagccc 19620
ccattgttta tctcctcttc catttcttgt ggggactttt aaaggaaaaa tcaggttggt 19680
gggctggggg agggcatagc tgagaccacc ttgagggcac caagctcact gaccac
                                                                  19736
```

<210> 4

<211> 379

<212> PRT

<213> Homo sapiens

<400> 4

Met Ala Trp Arg Gly Trp Ala Gln Arg Gly Trp Gly Cys Gly Gln Ala Trp Gly Ala Ser Val Gly Gly Arg Ser Cys Glu Glu Leu Thr Ala Val 25 Leu Thr Pro Pro Gln Leu Leu Gly Arg Arg Phe Asn Phe Phe Ile Gln Gln Lys Cys Gly Phe Arg Lys Ala Pro Arg Lys Val Glu Pro Arg Arg Ser Asp Pro Gly Thr Ser Gly Glu Ala Tyr Lys Arg Ser Ala Leu Ile 75 70 Pro Pro Val Glu Glu Thr Val Phe Tyr Pro Ser Pro Tyr Pro Ile Arg Ser Leu Ile Lys Pro Leu Phe Phe Thr Val Gly Phe Thr Gly Cys Ala 100 105

Phe Gly Ser Ala Ala Ile Trp Gln Tyr Glu Ser Leu Lys Ser Arg Val 120 Gln Ser Tyr Phe Asp Gly Ile Lys Ala Asp Trp Leu Asp Ser Ile Arg 135 Pro Gln Lys Glu Gly Asp Phe Arg Lys Glu Ile Asn Lys Trp Trp Asn 150 155 Asn Leu Ser Asp Gly Gln Arg Thr Val Thr Gly, Ile Ile Ala Ala Asn 170 165 Val Leu Val Phe Cys Leu Trp Arg Val Pro Ser Leu Gln Arg Thr Met 185 180 Ile Arg Tyr Phe Thr Ser Asn Pro Ala Ser Lys Val Leu Cys Ser Pro 200 Met Leu Ser Thr Phe Ser His Phe Ser Leu Pho. His Met Ala Ala 215 220 Asn Met Tyr Val Leu Trp Ser Phe Ser Ser Ser Ile Val Asn Ile Leu 230 235 Gly Gln Glu Gln Phe Met Ala Val Tyr Leu Ser Ala Gl Val Ile Ser 250 245 Asn Phe Val Ser Tyr Leu Gly Lys Val Ala Thr Gly Arg Tyr Gly Pro 265 Ser Leu Gly Ala Ser Gly Ala Ile Met Thr Val Leu Ala Ala Val Cys 275 280 Thr Lys Ile Pro Glu Gly Arg Leu Ala Ile Ile Phe Leu Pro Met Phe 295 300 Thr Phe Thr Ala Gly Asn Ala Leu Lys Ala Ile Ile Ala Mat Asp Thr 310 315 Ala Gly Met Ile Leu Gly Trp Lys Phe Phe Asp His Ala Ala His Leu 325 330 Gly Gly Ala Leu Phe Gly Ile Trp Tyr Val Thr Tyr Gly His Glu Leu 345 Ile Trp Lys Asn Arg Glu Pro Leu Val Lys Ile Trp His Glu Ile Arg 360 Thr Asn Gly Pro Lys Lys Gly Gly Gly Ser Lys 375